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Proceedings of the Society.

CANTOR LECTURES.

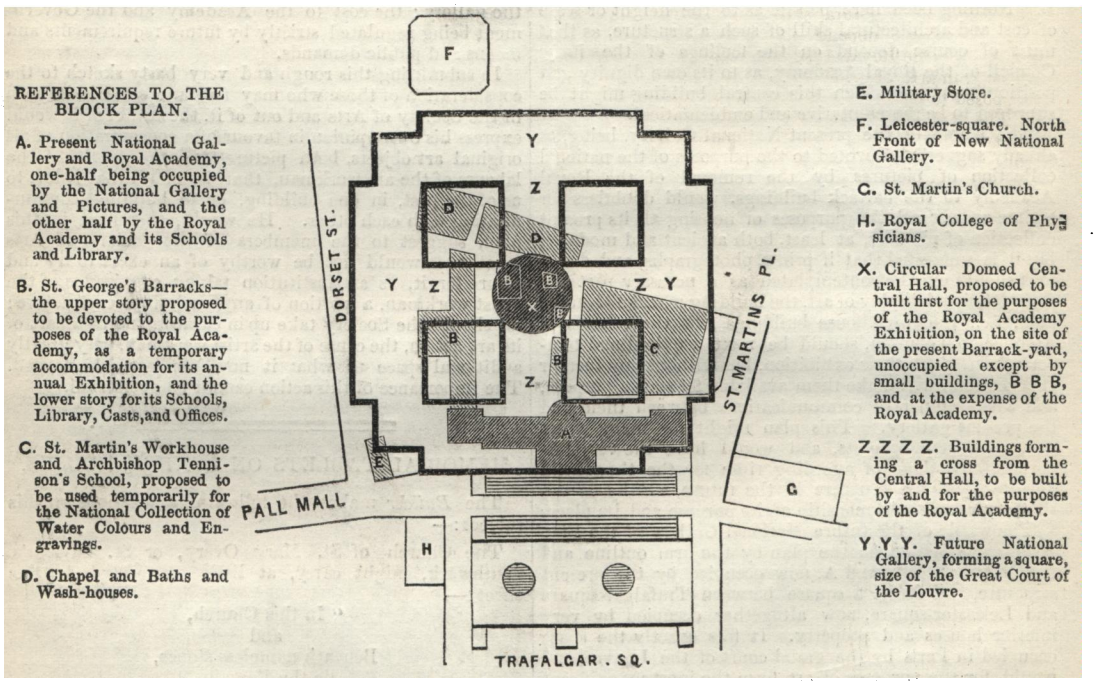
The publication of Dr. Grace Calvert's course will be resumed in an early number.

NATIONAL GALLERY AND ROYAL ACADEMY.

The following plan for combining the National Gallery and Royal Academy on the site of the present National Gallery, has been suggested by Mr. C. Bruce Allen, architect:—

Unity of purpose and definiteness of aim constitute strength, and the reverse weakness and impossibility of action, say the masters of military art, and events perpetually prove the truth of it, if not in warfare at least in fine-art matters and movements, for at no time in Art history have there been such efforts made and so much thought given to Art and its progress as now, but unhappily, from want of accord and aim, without practical result. It is for the purpose of helping, as far as may be, this desired end—a definite purpose—that this suggested plan of combining the two great central art establishments of England is suggested; the one the national collection of pictures, and the other the guiding schools and modern effects of the study of them.

In spite of all that has been said of it, there certainly does not exist in London, with the exception of Primrose-hill, so fine a site for a good building as that now occupied by the present National Gallery; and most certainly there is not in Europe a worse building, or one more unworthy of its purposes and the country. The annexed plan, it is hoped, will at least be found to indicate something better:—



It is suggested that, in the first place, the whole of the present National Gallery, now partly occupied by the Royal Academy, should be used, without any alteration or expense whatever, for the purposes of the national collection of pictures, and that the Royal Academy should then occupy (as soon as barrack accommodation can be provided elsewhere) the whole of the plot of buildings marked B on the plan. No expense beyond the mere fitting the rooms to their temporary purpose is contemplated, as the upper rooms of the barrack buildings would form long corridors, lighted from the roof, suitable for the exhibition of pictures and sculpture, the public entrance being through the National Gallery itself, thus giving the public, as suggested by Lord Palmerston, an opportunity of comparing the doings and efforts of the past with the present. As the needs of the Academy increased, it is suggested that the chapel and baths and wash-houses, marked D D on the plan, should be occupied by it for its schools and library, and collection of architectural and other casts, so as to leave further space for its annual exhibition; the different buildings being, of course, temporarily connected together. It is thought

that by this plan so large a space would be available that all objections to a more liberal action on the part of the Academy would cease, and that reform would become a reality, so that the more humble and less known artists would have opportunities of exhibiting their works, now impossible from the simple want of space to put them in. It is obvious, too, that the schools of the Academy, on which nearly its whole power over Art in the future surely rests, might be increased to almost any extent, and that its generous plan for giving free instruction and help where it is most of all needed, might be made almost infinitely more effective than it is, in the presence, too, of a fine collection of antique art.

But the point in the plan to which attention is more especially desired is that of the possibility, on the part of the Academy, of erecting for itself a building or buildings on a scale of magnificence worthy of it and of its reputation in art. It will be observed that the circular room, marked X on the plan, stands in the present barrack-yard, occupying only the space of two or three small buildings, now used, it is believed, as guard-houses, and might be commenced by the Academy without even for years disturbing any of the existing or temporary arrangements. In the plan the buildings D D are shown rather too near the circular building, as there is a clear space of the narrow street (Orange-street) between the two buildings X and D.* So that this first building by the Royal Academy itself, and out of its own funds, would be commenced without creating even temporary inconvenience, either to itself or to any arrangements the National Gallery might require. A temporary communication would, of course, be needed between it and the building B. Nothing need here be said as to the height or scale of cost and architectural skill of such a structure, as that must of course depend on the feelings of the inner Council of the Royal Academy, as to its own dignity and position in art, of which this central building might be supposed to be representative and emblematical.

The whole of the present National Gallery, being, as already suggested, devoted to the purposes of the national collection of pictures by the removal of the Royal Academy to the barrack buildings, would doubtless for a time answer all the purposes of housing all its present collection of pictures, at least, both ancient and modern; but it is suggested that if prints, photographs, and drawings should ever be contemplated as a necessary part of a future national display of art, the building marked C on the plan, *i.e.*, the workhouse buildings and the schools of Archbishop Tennison, should be next acquired and temporarily used for their exhibition, but without any further expense than will make them available for such a purpose, and with temporary communications between them and the present gallery. This plan might for many years answer all requirements, and would have the very important advantage of affording time for the thoughtful development of a structure in the future, worthy in design, style, and workmanship of its purpose and its place.

The whole of the future National Gallery of the Fine Arts is represented on the plan by the firm outline and the letters Y Y Y and A, now occupied by the present structure, and forms a square between Trafalgar-square and Leicester-square, now altogether occupied by very inferior houses and property. It fills exactly the space occupied in Paris by the grand court of the Louvre, and would, for the purposes of art, form the most magnificent square in Europe if at all worthily handled. It is here, too, that this plan would seem to offer some advantages to others that have been at sundry times proposed, for, as will be seen, the angle at E, now occupied by a military-store establishment, might be the point of commencement of the future Gallery on a great scale, and the whole of the west-side portion, Dorset street, erected in portions, and from time to time, as need and funds required and allowed; communication being made between the present building and the newly-built portions. Thus it will be seen that the present National Gallery would not for very many years need to be touched, and would answer all useful purposes, while the nation and the House of Commons would have the satisfaction—no slight one—of feeling that something was at last being done to remedy existing defects and make up for so much and such long delay; the House of Commons having justly determined to keep the national pictures where they are. Not to lengthen at present this short sketch, it may be mentioned that the site of Trafalgar-square is so good from the simple fact of the ground rising from Charing-cross to the Gallery building, thus placing the building at the greatest possible advantage, inasmuch as the spectator looks up at it and approaches up to it; indeed, as the Parthenon at Athens was approached. This affords opportunity for flights of steps, as shown on the plan, being constructed on a scale worthy of the building and the site, and would certainly add not a little to its value as an art work.

As it is the fashion now-a-days to suggest several ways of doing a thing for which in reality there is but one right way, it may be added that the length A would be a complete building, and A Z another, and A Z Z another, and so on. And, should the ingenious reader think proper to try it, he will find that no less than nineteen ways of forming—according to modern notions of completeness—perfect buildings may be made out.

The future additions by the Royal Academy would be by means of the arms of the cross, Z Z Z Z, so as to communicate with the domed hall and the corridors of the gallery; the cost to the Academy and the Government being regulated strictly by future requirements and means and public demands.

In submitting this rough and very hasty sketch to the consideration of those who may feel interested in it, both in the Society of Arts and out of it, the author of it would express his own opinion in favour of a concentration of all original art objects, both pictures and the results of the labours of the art-workman, that is, of all that is left to us of the past, in one building, or in buildings communicating with each other. He would, therefore, in this plan, suggest to the members of the Society of Arts whether it would not be worthy of an effort to try and secure for it, as an institution taking cognizance of the artist workman, a portion of any such future structure; for should the Society take up in earnest, and as a part of its art action, the cause of the artist workman, very greatly additional space to what it now has would be needed. The importance of this action cannot be overstated.

* A reference to the large scale Ordnance Map will show this.

MEMORIAL TABLETS ON LONDON HOUSES.

The *Builder* makes the following suggestions on this subject:—

The Church of St. Mary Overy, or St. Saviour's Southwark, might carry, at little cost, words to this effect:—

"In this Church,
and
Beneath nameless stones,
lie the Remains
of
John Fletcher,
Poet,
(Beaumont's associate);
and of
Philip Massinger,
Poet,
Author of 'A New Way to Pay Old Debts.'
Fletcher died in 1625, of the Plague,
and
Massinger in 1638-9."

On an outer wall of the same church we should like to read:—

"In this Church of
St. Saviour, Southwark,
was buried,
31st Dec., 1607,
'With an afternoon's knell of the great bell,'
EDMUND SHAKSPEARE,
Player,
Younger brother of
William Shakspeare.
(England's myriad-minded Poet
was then a shareholder and actor
in
The Globe Theatre,
in this parish)."

This, on the little Church of St. Peter, in the Tower, would serve a good purpose:—

"SIR JOHN ELIOT,
of
Cornwall,
the fellow-labourer with
John Hampden and John Pym
in defence of
Liberty,
Died a Prisoner in this Garrison,
in 1632, aged 42,
and
was buried, by command of
King Charles I.,
in this Chapel of
St. Peter ad Vincula.
The stone which covers his body is
uninscribed."

Shaftesbury House, in Aldersgate, should be made to carry:—

"In this House
(Inigo Jones, architect)
Lived and Caballed
ANTHONY ASHLEY COOPER,
Earl of Shaftesbury
and
Lord High Chancellor of England,
In the reign of
King Charles the Second."

A church near to the Guildhall would "stay" many a "passenger" to read words "akin to these":—

"In this Church of
St. Lawrence Jewry
(Sir Christopher Wren, architect),
GILBERT BURNET, Bishop of Salisbury,
Preached in 1694
The Funeral Sermon of
John Tillotson,
Archbishop of Canterbury.

In early life the great Tillotson
Was Tuesday Evening Lecturer in this Church."

This would arrest and deserve the attention of all who are wending "Eastward ho!" or "Westward ho!"—

"In the Font of this Church
of
St. Michael's, Cornhill,
THOMAS GRAY,
Author of
'An Elegy written in a Country Churchyard,'
Was Baptized in
The Year 1716."

This, on No. 17, Gough-square, Fleet-street, would bring a debt of national gratitude to complete remembrance:—

"In a Garret
In this Square
SAMUEL JOHNSON
Compiled
His famous Dictionary
of
The English Language."

This, in Silver-street, Golden-square, would please more artists than Mr. Clarkson Stanfield or Mr. David Roberts:—

"At Mr. Viggans' in this street,
Lived,
In the year 1752,
ANTONIO CANALETTI
The well-known Painter of "Views of Venice."

The Poet Laureate, we are sure, would not be displeased at seeing a stone to this purport in Piccadilly:—

"In this Church of
St. James's, Westminster,
Lies buried,
MARK AKENSIDE,
Author of the 'Pleasures of Imagination.'
Born 1721. Died 1770."

Mr. Macready, when in London, and in Great Marlborough-street, would bow with reverence to the house connected with the name of Mrs. Siddons:—

"SARAH SIDDONS,
In the height of her Fame
as
England's greatest Actress,
Lived in this House."

Baron Marochetti, again, would be pleased to be reminded of a great sculptor:—

"In this House,
No. 30, Lower Belgrave-place,
SIR FRANCIS CHANTREY,
Sculptor,
Died,
In the year 1841.
All his finest works
Were executed
Here."

Even an ancient Royal Academician would not grumble at seeing, on No. 30, Allsop-terrace, New-road, an inscription to John Martin:—

"In this House,
JOHN MARTIN,
The painter and engraver of 'Belshazzar's Feast,'
And other noble works,
Lived for five-and-twenty years.
The gallery in which he worked
(At the rear of the house)
Is still to be seen.
He died in 1854,
In the Isle of Man."

The late Right Hon. John Wilson Croker, were he alive, and in Savile-row, would have given a nod of approbation at reading,—

"In this room
(Of set No. 1 E in the Albany)
THOMAS BABINGTON MACAULAY
Baron Macaulay,
Wrote the earlier half
of his
'History of England;'
And in
Set No. 2 A,
LORD BYRON
Wrote his poem of 'Lara.'"

We cannot conclude without renewing a hope and repeating a belief that something will be done—and soon

too—in a matter that will be honourable to those who erect, and pleasant and suggestive to those who read.

We have pleasure in drawing attention to the following letter:—

"SIR,—The admirable suggestion contained in your paper, of marking, in a permanent manner, the residences of great men (why not of women, too?) in London, cannot, I think, fail of being responded to.

"In order to carry this suggestion into a practical use, it is evident that money must be forthcoming; and, as a beginning, I am authorised by a kind and liberal friend to inform you that he is ready to subscribe twenty pounds towards this good work; and, should it be responded to, as I can have no doubt but that it will be, the money will be paid on an application from yourself made to.—Yours, &c. EDWARD JESSE."

EXAMINATION PAPERS, 1864.

The following are the Examination Papers set in the various subjects at the Society's Final Examinations, held in April last:—

(*Continued from page* 604.)

PRACTICAL MECHANICS.

THREE HOURS ALLOWED.

1. Distinguish between "spur" and "bevil" wheels; what is the pitch circle of a toothed wheel? How could you conveniently connect two axes by a train of wheels when you wished one axis to revolve 720 times as fast as the other?

2. Define a "screw surface" and the "pitch" of a screw. Describe the screw-cutting lathe, and explain the method of using a set of change-wheels.

3. When a beam is moved lengthways upon rollers, why is the travel of the beam twice as great as that of the rollers?

4. Explain the arrangement of three pulleys and three bevil wheels for producing a reversing motion in a planing machine: describe also some contrivance for obtaining a reversing motion with a quick return.

5. When two unequal cranks, moveable upon centres, are connected by a link, compare their angular velocities in any given position: what are the conditions under which a continuous motion of one crank would impart a reciprocating motion to the other

6. Select and explain some examples which illustrate the use of cams in machinery.

7. Enumerate the principal parts of a double-acting condensing steam-engine, and point out very briefly the uses which they severally fulfil.

8. Analyse the arrangement and method of construction of marine engines of the following classes:—(1) oscillating engines, (2) horizontal trunk engines.

9. Explain the eccentric for working the slide-valve of a steam-engine: draw the locomotive D slide-valve, and the ports for the passage of the steam, giving at the same time a description of your drawing.

10. What is the construction of the indicator? How may it be used for the purpose of ascertaining the actual working power of a steam-engine. Draw an indicator diagram of the character which you would expect to take from a condensing steam-engine.

MAGNETISM, ELECTRICITY, AND HEAT.

THREE HOURS ALLOWED.

1. Explain what you consider the best construction of a mariner's compass? By what arrangement of the needles may some errors of deviation be obviated?

2. Explain the influence of some periodic natural phenomena on the earth's magnetism?

3. Define the relations of magnetic and diamagnetic force.

4. State the two theories of electricity, and give any reasons you may have for preferring either.

5. State the difference between an electrometer and an electroscope, and explain the construction of the condensing electroscope.

6. What are the conditions of efficiency in a lightning-conductor?

7. Give some experimental proof of the identity of the electricities of the machine and the battery.

8. What is an astatic needle? How is it employed in a galvanometer, and what position ought it to assume?

9. State the phenomena of electro-magnetic rotation, and explain them by the action of some well known apparatus.

10. Explain the construction of Wheatstone's magneto-electric telegraph.

11. Give the construction of an induction coil machine, and state the means of intensifying its action.

12. Can electricity be advantageously employed as a motive power? State the reasons for your answer.

13. Explain the ordinary electrical state of living nerve and muscle.

14. Explain and illustrate the transmission of heat by conduction and by convection.

15. Describe the best means of observing very low, medium, and very high temperatures.

16. Define specific and latent heat, and state their numerical amounts, respectively, in some well-known bodies.

17. State some points of analogy between radiant heat and light, and the theory of heat that you would deduce from them.

18. How is the boiling point of liquids affected by pressure? State the boiling point of water at some pressures greater than that of the atmosphere.

19. Explain the "Spheroidal state" of water, and its importance in relation to engine boilers.

20. Explain the construction and use of either Mason's, Daniell's, or Regnault's hygrometer.

ASTRONOMY.

THREE HOURS ALLOWED.

1. Explain aberration of light, and show its effect on the position of a star.

2. Explain the nutation of the earth's axis, and show its effect on the position of a star.

3. Explain the method of drawing a meridian line at any place.

4. Mention what is known of the nature and motions of double stars.

5. Define parallax, state where it is greatest and how it varies.

6. If the sun's horizontal parallax be 8″·9, what is his distance from the earth.

7. If the moon's distance from the earth be 60·2 times the earth's radius, what is the horizontal parallax of the moon.

8. The length of a degree on the earth's surface has been measured both north and south of the equator, and its mean length is about 69·45 miles, what is the Equatoreal radius of the earth?

9. The length of a degree on the earth's surface has been measured far from the equator and it is found that the length of a degree increases from the equator to the pole such that the ellipticity of the earth is $\frac{1}{288}$ nearly, what is the polar diameter of the earth.

10. If the zenith distance north of Polaris be observed at its inferior transit over the meridian be 39° 55′ 51″·81, and of its superior be 37° 5′ 19″·96; and the corrections for refraction be 48″·46 and 44″·62 respectively, what is the star's north polar distance, and what is the latitude of the place of observation?

11. Define a tropical year?

12. Define a sidereal year, and determine its length, assuming the length of a tropical year as 365d. 5h. 48m. 51·6s.

13. Define an anomalistic year and calculate its length.

14. Define a sidereal day, a solar day, a mean solar day, and the equation of time.

15. The interval of time from the sun leaving Aries till he returns to it again is 365d. 5h. 48m. 51s., what is the sun's mean motion in longtitude or right ascension in one solar day, and what is the relation between a sidereal day and a mean solar day.

16. Deduce formulæ to convert sidereal into mean solar time, and conversely.

(17.) On February 25, 1860, the observed transit of Castor was 7h. 25m. 22·23s., and the calculated place of the star on this day was 7h. 25m. 42·56s.

The level error was 5″·9, west end of axis too high.

Azimuthal error was 6″·7, east pivot too far north.

Collimation error was 0″·9, correction to stars above the pole subtractive.

The sin. of zenith distance was ·333

The cos. of zenith distance was ·943

The sin. of north polar distance was ·846

What was the error of the clock?

The numerical corrections to the time of observed transit, in seconds of time, are—

$$\text{Error of Collimation} \times \frac{1}{15 \sin. \text{N P D}}$$

and additive when stars above the pole require an additive correction.

$$\text{Error of level} \times \frac{\text{cos. zenith distance}}{15 \sin. \text{N P D}}$$

and additive when the western end of the axis is too high.

$$\text{Error of azimuth} \times \frac{\text{sin. zenith distance}}{15 \sin. \text{N P D}}$$

and additive when the eastern pivot is too far north.

18. The transit of the centre of Jupiter on the same day corrected for error of level, collimation and azimuth was 7h. 7m. 16·82s, using the error of the clock as found from Castor, with a losing daily rate of 0·3s, what was the error of the tables?

The places of Jupiter as given in the Nautical Almanack are—

February	24	at noon	7h. 7m. 53·26s.
"	25	"	7h. 7m. 40·65s.
"	26	"	7h. 7m. 28·87s.

The sidereal time at mean noon on February 25 was 22h. 18m.

19. The zenith distance of the sun's north limb was 69° 44′ 20″·47.

The zenith distance ot the sun's south limb was 70° 16′ 41″·64.

The correction for refraction for north limb was 2′ 38″·59, and for parallax was 8″·12.

The correction for refraction for south limb was 2′ 43″·22, and for parallax was 8″·15.

The latitude of the place of observation is 51° 28′ 38″·20.

What was the diameter of the sun, and what was the error of the tables, the calculated place of the sun being, south declination 18° 34′ 21″·10?

20. On November 7, 1861, the calculated place of the moon when she passed the meridian of Greenwich was 109° 46′ 8″·7.

The observed zenith distance of her south limb was 72° 23′ 12″·87.

The correction for refraction was 2′ 59″·84.

" " parallax was 55′ 20″·44.

The semi-diameter of the moon was 15′ 54″·12.

What was the error of the calculated place?

(To be continued.)

Fine Arts.

SIGNOR BRUCCIANI, of Russell-street, Covent-garden, has just completed a large and handsome gallery, which he has filled with casts from all the finest remains of antique sculpture. They are the same as those supplied by him to the Science and Art Department, the British Museum, and the Royal Academy. The contents of this gallery consist of statues, statuettes, machine reductions, and copies from the antique, casts from original modern statues and busts, figures for gas lights, statues and portraits of eminent men of all professions; animals, animals' heads, and groups of animals, both antique and modern, relievi, basso and alto, vases, tazzi, and torsi; candelabra and tripods; casts from all the principal parts of the human figure, anatomical studies, fruit, foliage, and flowers in relief, from nature, for the use of artists and students; and ornaments of all kinds for both external and internal decorative purposes.

WINCHESTER CITY CROSS.—A committee has been formed for the restoration of this cross, a work of the 15th century, which has for years been in a state of great dilapidation and decay, three out of the four statues with which it was originally decorated having been destroyed. Mr. G. G. Scott has furnished plans for the restoration of the cross, and has undertaken to superintend the execution of them. He proposes to retain as much of the original structure as may be found practicable, and to restore the whole, as nearly as possible, to what he believes to have been its original state. The sum of £600 will be required to complete the work.

ARCHÆOLOGICAL INSTITUTE.—The Warwick meeting of the Archæological Institute has been particularly pleasant and instructive. Excursions were made to Kenilworth, Coventry, Lichfield, and Stratford-on-Avon, where papers were read and explanations given of the objects interesting to the antiquary. In Warwick, the castle first claimed the attention of the visitors; a historic sketch of the building was given by the Rev. C. H. Hartshorne. The company included the President, Lord Leigh, the Bishop of Oxford, the Dean of Chichester, and Mr. Beresford Hope. On entering the suite of rooms which the Earl of Warwick had thrown open, Mr. Scharf gave explanations of the pictures and portraits. The after-part of the day was devoted to an excursion to Stoneleigh Abbey and a visit to the ruins of Kenilworth. The following morning opened with an excursion to Coventry; the Mayor received the excursionists at St. Mary's Hall, which had been richly stored as a museum in honour of the visit. The city boasts of ancient archives and of certain pieces of municipal plate of rare historic interest. Leaving the hall, the party made a peregrination through the singularly picturesque streets of this commercial city of the middle ages. The remains of the cathedral, now consisting of little more than a substructure, were visited. There is little doubt that it formerly possessed three spires, and these added to the three church spires for which the city is still conspicuous, must have added much to the beauty of the city. Mr. Beresford Hope, in the choir of St. Michael, made some interesting remarks on the leading architectural features of that imposing church; spacious it was, and commanding, as fitted for a large and wealthy commercial community, and the choir was probably formerly used for the performance of the Coventry "mysteries." On Friday there was an excursion to Lichfield, where Professor Willis delivered a discourse upon the architectural history of the cathedral, and Mr. Winston read a paper upon the windows in the Lady Chapel. Professor Willis gave to his hearers an exhaustive analysis of the venerable cathedral, tracing the successive stages of its history. The paper read by Mr. Winston on the windows of the Lady Chapel, was remarkable for its advocacy of the style of the Renaissance and its defence of the Munich school of painted glass, as opposed to the more archaic, severe, and architectonic manner of anterior centuries. During the excursion to Stratford the house and grounds of Charlecote were visited. The house was kindly thrown open by its present owner, H. L. Lucy, Esq. On reaching Stratford, the mayor, the rector, and Mr Halliwell conducted the party from the birth-place to the

resting-place of Shakspeare. The Institute closed its proceedings on Tuesday, by a general meeting in the court-house of Warwick.

Schools of Art.—The Committee of Council on Education have decided that the present minutes relating to art instruction shall continue in operation up to the 31st March, 1865, as respects existing schools of art; and inquiry will be made as to the feasibility of establishing night classes for instruction in drawing to artisans in connection with Mechanics' and other Institutions and Schools not organised as distinct schools of art. During the recess the recommendations of the Select Committee of the House of Commons on Schools of Art will be taken into consideration.

Fine Arts in France.—The number of provincial exhibitions is increasing every year, exhibiting a growing taste for the arts amongst the provincial populations; the exhibitions of Angers, Melun, and Nancy were recently closed; that of Bayonne opened on the 10th July, and is announced to close on the 30th September; the Boulogne Exhibition opened on the 1st of July, and is to close at the end of the present month; that of Falaise commenced on the 14th July, to close on the 25th inst.; and the following are announced:—Marseilles, to open the 1st of September; and Rouen on the 1st of October. The Exhibition of Boulogne-sur-Mer contains 425 works and includes the productions of some of the most popular painters in France. The improvements which have occurred at the Louvre have greatly increased the number of visitors to that famous gallery; on Sundays the rooms are crammed; and on Tuesdays and Thursdays the average is between 1,500 and 2,000. The antiquities of the Campana collection are to be given to the public on the 15th inst., the day of the Imperial *fêtes*. The French school is now exhibited to great advantage, and its beauties and defects may be seen with a facility that it has never before enjoyed. The galleries of the Luxembourg attract at the present moment about 500 visitors on Sundays, from 200 to 300 on Thursdays, and on ordinary days from 100 to 150. The number of students and copyists in the various galleries increases daily; from 40 to 50 artists may be seen almost daily at work in the Salle des Dessins de la Bibhothèque alone.

Decorations of St. Paul's.—The ceremony of uncovering the first of the mosiac paintings in St. Paul's Cathedral, forming part of the intended embellishments of the interior, took place lately in the presence of the Committee for raising funds for this purpose. The mosaic was designed by Mr. Alfred Stevens, and carefully executed by M. Salviati, of Venice. It is placed in one of the eight spandrels formed by the great arches of the dome, under the whispering-gallery, and occupies a space of nearly 300 superficial feet. The design is intended to represent the Prophet Isaiah in a vision, with two attendant angels, and is one of a series of groups with which it is proposed to adorn the eight spandrels in that part of the edifice illustrative of the prophets. It represents the prophet seated, and turning half round towards the right, as if scanning some mystery which is indicated by a tablet held by an angel, while on the left another angel exhibits a separate revelation. It is executed on a gold ground, which greatly enhances its effect, and has occupied M. Salviati two months, the cost being about £700.

Manufactures.

Bleaching of Sponges.—A French savant, M. Artus, has been experimenting on the bleaching of sponges. Some good sponges were well washed by M. Artus in river water, and whilst still wet were placed in a bath of six parts water and one part commercial hydrochloric acid, and were allowed to remain until all the carbonic acid gas was discharged. They were then washed again, and afterwards strung together and immersed in hydrochlorie acid, diluted with six per cent. of hyposulphite of soda dissolved in water. The vessel was then closed, and left for forty-eight hours, when the sponges were taken out, washed and dried. M. Artus tried another experiment, in which the quantity of hyposulphite of soda was doubled. In a third experiment the sponges were, on removal from the bath, treated with hydrochloric acid, subsequently well washed, and then exposed to sulphurous acid gas. The sponges, however, by each of these processes were not thoroughly bleached, and a fourth method was tried. The sponges were well washed in hot diluted soda lye, then placed in a bath of weak hydrochloric acid and hyposulphite of soda, using only half the quantity of hyposulphite that was used in the first experiment, and a very satisfactory result was thus obtained.

Cosmetic Poisons.—In France, as in all civilised countries, the use of cosmetics is very great, and the mischief caused thereby enormous. Frequent cases of serious illness, permanent injury, and sometimes of death, caused by these compounds, which are quaintly described in the *Dictionnaire Universelles de Matière Médicale* as "destined to give to the face and body a beauty which they do not possess," are not sufficient to deter persons from recurring to all kinds of aids to beauty in the shape of powders, creams, washes, and dyes. MM. Chevalier and Trébuchet, both members of the sanitary council of Paris, have upon more than one occasion protested against the negligence of the administration which permits matters so injurious to the health as the great mass of cosmetics to be offered for sale, and to be puffed into notoriety by false statements and deceptive recommendations. Sometimes the law visits with its penalties the makers and salesmen of these poisons. In 1860, two perfumers sold pearl white to a number of actresses, who soon exhibited symptoms of having been poisoned; they fell into a condition of extraordinary languor, they lost their memory; their minds became affected, and their hands and arms became puffed and swollen. One of them was very nearly losing her life. The matter was carried before the tribunal of correctional police; the preparations were analysed and found to contain considerable quantities of carbonate of lead, and the two perfumers were each imprisoned for three months and fined £20. There have been several other remarkable cases of the like kind, though none, perhaps, so striking as the above; and the scientific men of France have made many praiseworthy efforts to enlighten the public mind on the subject. Amongst others M. Réveil, a distinguished chemist, has published a work on cosmetics, in which the tricks of the perfumer are laid bare in a determined manner. The use of cosmetics is unusually large in Paris, and the business of the perfumer and the quack—not of necessity, but too often united in one—is carried out on a large scale, but the warnings which have been published in Paris are equally applicable to London. It is right that English as well as French ladies should know that of all the ordinary cosmetics violet powder (*Poudre de riz*) is one of the most innocent, and that even the substances with which it is sometimes, if not often, adulterated, namely, plaster of Paris and talc, are not injurious to the general health, whatever may be their effect upon wrinkling the skin and rendering it coarse in appearance. The powders and washes sold for the removal of superfluous hair are declared to be highly dangerous, containing, as they do, mercury, arsenic, oxide of lead, quicklime, and caustic soda, all deleterious. An actress of the Vaudeville Theatre suffered severely from the use of one of these powders, it having produced deep and painful wounds; it was found on analysis to contain quicklime and caustic soda. One of the depilatory fluids best known is the rusma, which is used by the Orientals; this is simply quicklime and sulphite of arsenic boiled in an alkaline solution. To give an idea of the character of this compound, and of the effect it must have upon the human skin, it may be mentioned that the mode of testing the strength of the rusma is to dip a quill into it, and if the feathers do not

fall off the stem the rusma is not fit for use as a cosmetic! In the time of Louis XIV. and XV. the barbers used to have two or three baths to let to their customers; there were no large bathing establishments in Paris, on the Seine or elsewhere, till about 1761, and it was the custom to rub the bather over with depilatory paste, the composition of which was fixed, by law, as follows:—4 ounces of quicklime, 1½ oz. of orpiment, and 2 pounds of lye made from bean stalks. The *lait antéphélique*, which is so strongly recommended for removing freckles, is simply a preparation of corrosive sublimate, one of the most virulent poisons known. Amongst the most dangerous cosmetics known in Paris are the common white and red pastes used in the theatres; the first is composed with white lead, the second with sulphite of mercury. The liquids sold by perfumers for dyeing the hair consist of red lead, chalk, and slacked lime. The preparations sold for the same purpose under the high-sounding names of Eau de Perse, Eau d'Egypte, Eau de Chypre, Eau d'Ebène, are generally only concentrated solutions of nitrate of silver. M. Trébuchet says:—"The sale of cosmetics is a matter of extreme danger, and an efficacious remedy is imperatively called for; at no epoch was the public credulity more abused. The evil is extensive, but fortunately not incurable, and the authorities are sufficiently armed without the passing of any new laws. The moment that a cosmetic is announced as having medicinal or prophylactic qualities; the moment it appears to include a secret remedy, it falls under the law expressly provided for such cases. The means of repression exist; it only remains to study how to apply them and to have the courage to put down an abuse when it appears." Some years since the sanitary council of the Seine gave its attention to the use of dangerous matters by the confectioners for tinting their sweatmeats, and now, in consequence of the periodic visits of the members of the council, the confectionary of Paris is almost, if not quite, purified from these deleterious substances. Why, it is asked, is not the same rule applied to perfumery? It is a matter decidedly affecting the health of the public in a high degree, and well deserves the trouble that it would entail upon the authorities. It is almost needless to add that all that is here recorded, and all that is proposed to be done in Paris, applies, in one sense in a greater, though in another in a less degree, to London; the use of cosmetics cannot be put down by the law, but the abuses of quacks may at any rate be exposed, and the public put upon its guard.

Cotton.—The cultivation of cotton is attracting much attention in the state of Yucatan. In 1862, the amount exported was only 240,000lb. The prices obtained in the Havannah and elsewhere, however, were so renumerative that several landed proprietors determined to turn their attention to the subject, and the consequence was that in the following year 1,200,000lb, were exported, and this year it is expected that the produce will nearly reach 3,000,000lb.

Cloth-Shearing Machine.—M. Alcan, member of the Mechanical Committee of the Société d'Encouragement of Paris, has published, in the bulletin of the Society, an account of a discovery of a MS. by Leonardo da Vinci, in which he describes and illustrates, by sketches, an invention of a machine for shearing cloth. It is well known that the great painter of the *renaissance* was not a painter merely; his name has been associated with a variety of scientific researches and mechanical appliances, and an account of them is given by Venturi, in "*L'Essai sur les Ouvrages Physico-Mathematiques de Leonard de Vinci*," and by the author of a work entitled, "*L'Histoire des Sciences Mathematiques en Italie depuis la Renaissance des lettres jusqu'à la fin du XVII. siècle.* M. Alcan was struck by the following passages from the latter work, having reference to Da Vinci's labours:—"We shall notice many machines for making cylinders, files, saws, shearing cloth, rabetting, reeling; a mechanical press, a hammer for goldbeaters, a machine for digging ditches, another for tilling the ground by means of water power, boring apparatus, a paddle for moving boats, and an infinity of other machines too numerous to mention. He also had constructed a number of ingenious apparatus for domestic purposes, and had conceived the idea of a smoke-jack for turning the spit." This passage seems to have excited M. Alcan's curiosity, and after much inquiry he learnt that these inventions were described in MSS., some of which, originally deposited in the library at Milan, had been taken from thence after the Egyptian campaign by the First Consul, and deposited in the private library of the Institute of France. There he has found three MSS., which contain, in addition to written descriptions, sketches of the inventions drawn in pen and ink by Da Vinci himself. M. Alcan was specially struck with the sketches of the cloth-shearing machine, and has had fac-similes of them printed and inserted in the Society's Bulletin. There are seven sketches in all, and they exhibit a machine with cutting blades wrapped round a cylinder after the fashion of a screw. The cylinder lies transversely on the cloth, and has a double motion, one of rotation on its axis, the other of translation along the length of the cloth, which is stretched beneath it. The machine bears a remarkable analogy, indeed is almost identical with, the first automatic shearing machines, known as transverse machines, working over the cloth which remained fixed. Such machines were known in England under the name of Lewis's, and in France under that of Collier's, who first imported them into that country. Previous to the commencement of the present century, all the woollen cloths were sheared or cropped by hand, and machinery for the purpose was not introduced into the manufacture till about the year 1802.

Commerce.

Fisheries of France.—The admirable exertions which have been used in France for the artificial propagation and preservation of fish, are about to be seconded by the promulgation of a new law relating to fisheries. One of the provisions of this draft law is in accordance with the practice in England, and with the representations which have been made on the subject by the English to the French government, and prohibits the taking and selling of fish during the spawning season. In the original draft adopted by the commission appointed to draw up the bill, this clause referred only to salmon and trout, but the Minister of Agriculture and Commerce consulted M. Coste, Inspector-general of river fisheries, to whose skill and energy is due the great fish preserve at Concarneau, described in the Society's *Journal* of the 29th July, who of course advocated the application of the interdiction to all kinds of fish, the preservation of which is a matter of public importance, and the bill has been altered accordingly. To save is always more easy than to create, and the value of this decision is of infinite importance.

Quinquina.—The French are about to undertake the cultivation of the Quinquina in the oasis of Ghauna, in Algeria.

Cotton.—Messrs. Smith, Edwards, and Co., in their circular for August, say:—"The great basis of strength to our market consists in the prospective scarcity of supply, for as the season progresses it becomes more apparent that the present rate of consumption, and an export demand slightly in excess of last year, cannot be maintained without leading to a considerable reduction in stock before the end of the year. The shipments from Bombay in the fortnight ending the 8th July, were only 15,000, and for several months they will be small, owing to the prevalence of the monsoon—probably not larger than last year, when they averaged 25,000 bales fortnightly—and though they will likely be heavy during the last three months of the year, these shipments will not come into this year's supply. It does not seem probable that we shall receive a large increase of long-staples over the

same period last year, as there is little Brazil cotton afloat, and the Egyptian crop is now almost exhausted. We shall have pretty liberal arrivals of new crop Mediterranean cotton in November and December, but the experience of past years teaches us that we cannot expect any weight of this cotton before January. The position of Manchester is still extremely healthy, no accumulation of stock is taking place, and a good demand for the home trade and export steadily takes off the present production. The accounts from the East, though less encouraging than the latest dates, show that India is responding to the movement here, and better news is confidently expected. The position of the trade, looked upon in the light of supply and demand, is strong, and would seem to warrant a higher range of prices during the autumn; but this may be more than counterbalanced by the course of American affairs."

The Timber Trade between France and Norway has progressed of late. In 1863 the quantity of sawn timber, for building purposes, imported direct into France from Norway, was 123,404 steres (the stere is rather more than 35 cubic feet) of one sort, and 19,162,314 metres (the metre is rather more than 3 feet 3¼ inches) of another sort; whereas in 1862 the quantities respectively were only 112,645 steres and 15,842,544 metres. In the first five months of the present year the import of the former sort was 60,319 steres to 52,685 in the same period of last year; and of the other sort 6,955,563 metres to 2,327,162. In other descriptions of timber there is likewise progress. The port of Dieppe has obtained a fair share in the trade, and is making great efforts to increase it.

Imports from France.—It appears from a parliamentary return that the value of the linen manufactures, viz., cambrics and French lawns, damask and damask diaper, sails and sailcloth, &c., imported into the United Kingdom in the year ended May 31, 1863, was £55,934. In the year ended the 31st of May this year the total value of the imports was £211,949. The great increase is in linen yarn.

Colonies.

The Gold of New Zealand.—A return of the quantity and value of gold exported from New Zealand from 1st April, 1857, to 31st December, 1863, has been issued. Otago has exported during the quarter ending 31st Dec., 1863, 131,601 ozs. of the precious metal, of the declared value of £509,953, exclusive of the following quantities from Invercargill and the Bluff, which were the produce of Otago, viz., 3526 ozs. and 458 ozs. respectively, of the value together of £15,438. The total quantity exported from Otago now amounts to 1,201,536 ozs., the money value being set down at £4,665,565. From the same return it appears that Nelson (of course exclusive of the products of the late discoveries) has exported a total quantity of 61,828 ozs., valued at £239,583; and Auckland has exported 6073 ozs., of the value of £19,329.

Gold Dust.—The quantity of gold dust imported into the Sydney Branch of the Royal Mint, from the 1st Jan. to the 28th March, for the purpose of coinage, has been 115,427 ozs., and the amount of gold issued has been 324,000 sovereigns. For the same period of the year 1863, the receipts of gold dust amounted to 119,050 ounces, and the coin issued to 358,000 sovereigns. The difference in the gold dust received for coinage, as compared with last year, is only 3623 ounces, and in the coin issued 34,000 sovereigns; but this is owing to the fact that two or three parcels of gold dust have been recently received from Victoria, and not to any improvement in the yield of the gold fields, which still show a considerable falling off on the receipts of last year.

Tobacco in New South Wales.—The tobacco plantings in this colony are said to have fully realised the expectations of several owners.

New Zealand Revenue.—The Customs returns of the value of imports and exports for the quarter ending March 31, shows that the imports amounted to £870,418, of which £373,808 was from Great Britain and £353,813 from Victoria. The value of exports for the same period was, the produce of New Zealand, £688,009 1s. 7d.; other countries, £13,242; total, £701,251 1s. 7d.

Agricultural Machinery in New Zealand.—There are now at the Taieri and Tokomairiro alone some six or seven steam thrashing machines, besides those which are worked by horses. Some of the former are portable, and may be hired by the day, at so much per bushel of grain. The demand this season is larger than usual for chaff-cutters, winnowing machines, and corn-crushers.

Peak Downs Copper Mine.—A Sydney paper says that the last accounts from this mine report that smelting operations had commenced, and that the ore turned out to be a very rich metal. Three of the shafts that have been opened disclose the existence of several thousand tons of ore of good per centage, all of which can be raised at a trifling cost.

The Population of Tasmania, on the 31st of December, 1863, was estimated at 91,519. The estimated population on 31st December, 1862, was 49,441 males, 41,682 females, less 395 children, whose sexes have not been distinguished. Total population on that date 90,728; increase during the year 1863, by arrivals, 3,621, and by births, 2,998; total increase, 6,619; decrease by departures, 4,410; by deaths, 1,410; total decrease, 5,828. These figures show an actual increase in the population of 794 souls.

Obituary.

John Morton, of Nailsworth, Gloucestershire, one of the original members of the Royal Agricultural Society of England, and agent for many years over the estates of successive Earls of Ducie, died on the 26th July, aged eighty-three. A quarter of a century ago he established, on Lord Ducie's property, the Whitfield Example farm, which at one time received large numbers of visitors, inquiring into the results of the land drainage, and of the management which he there superintended and directed. He also first attempted to illustrate the connection existing in this country between agriculture and geology. In early manhood—already, however, in the occupation of a small farm in his native county, Fife—Mr. Morton repeatedly walked over most of the counties of England. His notes on the geology and farm practice of the districts thus examined were afterwards collected and published in his book "On Soils," and this, as the work of an original observer, was cordially introduced to the agricultural public by the late Dr. Buckland and the late Philip Pusey, M.P., and went through several editions during 1840-1848. He also wrote a controversial pamphlet along with his friend the late Joshua Trimmer, F.G.S., advocating the repeal of the corn laws from the agricultural point of view, on the ground that the farmer is or ought to be one of the largest consumers of grain in the right prosecution of his business—a truth which, though not generally admitted at the time, has since then been more and more realised. Early in the century Mr. Morton left Fifeshire, and took a farm near Dulverton, in Somerset; and, through the introduction of his landlord, the late Earl of Carnarvon, he was ultimately placed in charge of Lord Ducie's Gloucestershire estates. He retired at the age of seventy, and had latterly resided at Morningside Cottage, Nailsworth. He was the father of Mr. John Chalmers Morton, the well-known writer on agricultural subjects, and now Examiner in Agriculture to the Society of Arts.

Publications Issued.

The Story of the Guns, by Sir Emerson Tennant (*Longman*).—The author divides his book into three distinct parts:—The Rifled Musket — The Rifled Ordnance—and the Iron Navy. In the first of these he commences by describing the inefficiency of the regulation musket formerly in use, and questions whether, "without the invention of the bayonet, the musket of the last century would have permanently succeeded the cross-bow of the middle ages." He continues by describing the manner in which the musket was tested, and the ridiculous results obtained, and states that, not long ago, a well-trained marksman, using a regulation musket, could not put more than one bullet out of twenty into a target 18 feet square, the range being 300 yards. He repudiates the obstinacy of the Duke of Wellington in not adopting a new form of musket, and gives reasons for his reluctance to introduce a new arm, until the introduction of the Minié rifle was sanctioned in 1851. Starting from this, as the commencement of gradual improvement, he enters into a description of the carabine à tige, Minié, and Enfield bullets. Referring to the Enfield rifle of 1853, he says:—"During the ten years that have elapsed since its adoption, although other rifles made in England have greatly exceeded it in almost every essential quality, it admits of no doubt that the Enfield rifle is still superior to any arm yet adopted in other countries, and its efficiency was well attested at the Alma and at Inkermann, where, in the words of the *Times'* correspondent, 'it smote the enemy like a destroying angel.'" Mr. Whitworth is then brought into notice, and the experiments which led to the production of his well known rifle are referred to. In 1857 Mr. Whitworth reported to the Secretary of State for War his ability to communicate such velocity, by means of polygonal rifling with a quick turn, as effectually to control the tendency to "turn over" in projectiles of any length. The progress is now described as rapid. Mr. Whitworth adopted a ball of a cylindro-conoidal or hexagonal shape, and after a series of experiments the unknown secret was disclosed. "The unknown principle was found to consist in an improved system of rifling; a turn in the spiral four times greater than the Enfield rifle; a bore in diameter one-fifth less; an elongated projectile capable of a mechanical fit; and last, not least, a more refined process of manufacture." In consequence of the data derived from his rifled musket, Mr. Whitworth predicted, in 1857, what he effected in 1860-62, and said that "Projectiles of wrought-iron steeled might be made for pieces of ordnance capable of penetrating the sides of floating batteries protected by iron armour." The first part concludes with a summary of the events which have since occurred in relation to the Enfield and Whitworth rifles, and with the objections opposed to the Whitworth rifle by the Ordnance Select Committee. In the second portion of this work, which treats of rifled ordnance, Sir E. Tennant starts by running through a list of men who first rifled cannon. He says—"The idea of rifling artillery was far from being new; it had been tried in Germany more than a century before our time, and Robins, the accomplished inventor of the 'ballistic pendulum,' for determining the relative velocity of projectiles, experimented on rifled field-pieces in England so far back as 1745." M. Ponchara (1819) at Paris, and Montigny (1836) at Brussels, had attempted similar experiments. Colonel Cavalli in Sardinia, and Baron Wahrendorf in Sweden, experimented on rifling combined with a system of breech-loading. Between 1840 and 1852 Colonel Treuille de Beaulieu endeavoured to revive the subject in France, but it was not till 1854 that Napoleon directed that experiments should be made on rifled cannon. Mr. Lancaster's gun is then brought before us, "the chief peculiarity of which consisted in its having an oval or slightly elliptical bore, with an increasing rapidity in the twist as the spiral approached the muzzle of the gun." This gun was used in the Crimea, but of eight sent three burst, chiefly on account of their being old cast-iron guns bored for the occasion on the Lancaster system. After Mr. Lancaster we are told that Mr. Bashley Britten and Mr. Lynall Thomas patented guns in 1855, and our attention is called to the guns of Mr. Jeffery, Mr. Hadden, and Commander Scott, who adopted numerous modes of rifling. In 1858 the committee on rifled cannon report on seven guns submitted to them, and placing those of Armstrong and Whitworth in a class by themselves, consider it unnecessary to conduct further experiments with the remaining five. In 1863, when the report was made, they awarded the first place for rifling to Mr. Bashley Britten, on the ground of the small strain on the gun caused by his projectile. "Captain Blakely's system has not as yet been favourably regarded by the British Government, and although after evidence of its performance in 1855, two experimental guns were ordered by the War Office, some considerable time elapsed before they were tried at Shoeburyness." . . . . "The first gun, however, which Capt. Blakely produced in 1854, underwent a competitive trial with a cast iron gun and a brass one, both in use in the service, in the course of which the cast-iron one gave way, after 351 rounds, and the brass one after 479; whilst the Blakely stood 3,389 shots." The Mersey Company manufactured the Horsfall gun, which is a grand piece of forging; it weighs 24 tons and has a bore of 13 inches. Its performance is thus related:—"On the 16th September, 1862, it was laid at a range of 200 yards, and with a charge of 75lb of powder it sent a solid, cast-iron projectile, weighing 280lb, with a velocity of 1,100 feet in a second, through the central plate of a target formed of 18 inches of teak covered by 4½ inches of iron and lined with one inch of the same." At long ranges its accuracy was found to be inferior to its power. Sir William Armstrong and his gun are then made the subject of a chapter. After brief allusion to his crane and hydro-electric machines, Sir E. Tennant tells us that Armstrong was among the first to see the necessity of imparting to field artillery the accuracy and range of the rifle. Encouraged by the Duke of Newcastle, Armstrong puts together his first gun in 1855. In November the same year the War Office Select Committee report favourably and recommend experiments on a larger scale to be made on Armstrong's gun. In 1858 an 18-pounder called forth the praises of Colonel Mitchell, of the Royal Artillery, and Lord Panmure, and a 12-pounder and two 18-pounders were ordered for experiments. At the close of 1858, the Armstrong gun for special service in the field was adopted. An accurate description of the gun, its manufacture, system of rifling and projectiles, conclude the chapter. The chapter following is given up to Mr. Whitworth's gun. Mr. Whitworth first rifles some field brass guns, and these were reported on favourably; his attention then became turned to heavy guns, and he bored and rifled three brass blocks for 24-pounder howitzers. The extraordinary range of these, and the singular property of one of them in maintaining its *direct course* under water, called forth general attention. The 3rd division of this book gives us a history of iron plates, and recounts the efforts of the Admiralty to impose impregnable obstacles to the new rifled ordnance. The effect on the different kinds of shot when fired at some of the targets is interesting; but the account of the immense amount of controversy and diversity of opinions is more a matter of history than an aid in learning truths about guns or armour.

Notes.

The Prince Consort's birthday, on the 26th August, is to be kept as a holiday at the Royal Horticultural Gardens, South Kensington, which are to be open free to the public, at the express wish of the Queen.

FRENCH EXPEDITION TO MEXICO.—Messrs. Guillemin and Coignet, civil engineers, have been attached to the scientific staff sent by the French government to Mexico. This department undertakes the exploration of the metalliferous districts and mineral substances of that country.

ARCHÆOLOGY.—An inexhaustible mine of antiquities has recently been discovered in the ruins of Lambèse (Africa). A sepulchral vault, believed never to have been opened, has been discovered at about two hundred yards from the Prætorium. In it were found, amongst other things, two sarcophagi, bearing the names of a husband and wife, whose remains had been deposited therein, and each supported by two lions' heads sculptured. The lids were intact, and the skeletons lay perfectly embedded in beds of extremely fine clay. There were vases and medals discovered, and the following quaint epitaph, translated by M. Barnéond, the director of the Penitentiary at Lambèse:—"In memory of the Veteran Caius Acmilius Victor, who during his lifetime built and dedicated this hypogeum for himself and his wife, at the cost of 4,000 sestertiæ," about £24. A letter from Athens, addressed to the President of the Imperial Institute of Geologie of Paris, says that Dr. de Hahn, with thirty-six workmen, made an excavation at Baligdah, the supposed, or rather one of the supposed sites of ancient Troy, and these laid bare the whole Cyclopean wall of the castle or citadel. No sculpture was found, says the letter in question, but some Greek coins, lamps, and remains of figures in terra-cotta. The walls of the supposed acropolis were covered with vegetable mould to the depth of about thirteen feet. It is said also that the remains of another ancient citadel have been discovered opposite Baligdah, near Scamandre, and that excavations are going on there at the present moment.

Patents.

From Commissioners of Patents Journal, July 29th.

GRANTS OF PROVISIONAL PROTECTION.

Air and smoke valve—1757—T. Boyle.
Alarum for railway trains—1767—J. Clark.
Anchors—1700—S. Sharp.
Animal charcoal, apparatus for re-burning—1727—S. Carey.
Bolts, &c., machinery for making—1746—J. Lewis.
Brewing, improving water for—1695—A. Blake.
Carding and combing fibrous and textile materials—1581—A. Knowles and J. Barraclough.
Carding engines, machinery for grinding card cylinders of—1702—J. Middleton and J. Coulong.
Carriages—1721—W. E. Gedge.
Carriages, &c., propelling on inclines—1683—E. M. Marsden.
Chaff-cutting machines—1736 W. Barford, E. Pope, & S. Bradford.
Chain bands—1488—J. Lancelott.
Coffins—1744—V. Pean and A. F. Legros.
Collecting apparatus (money or tickets)—1748—E. Kerruish.
Cop tubes, machinery for applying to spindles of mules—1745—E. Kirby.
Cutlery bolsters—1715—T. McGrah.
Distilling apparatus - 1705—J. J. Moutié.
Distilling liquids—1732—J. Forbes.
Earth or soil raising and conveying machinery—1738—W. Wood.
Envelopes—1771—D. B. Grove.
Envelopes, &c., securing—1733—J. Tomlinson and T. Brassington.
Explosive compounds—1813—W. E. Newton.
Feathers and plumes, artificial—1690—P. S. de Pinna.
Fibrous materials, machinery for spinning—1763—T. Lancaster, J. Lancaster, and J. Whitaker.
Fibrous materials, machinery for treating—1743—W. L. Wise.
Fibrous substances, machinery for preparing—1769—W. K. Westly.
Fire-arms—1811—W. H. Wilks.
Fire-arms, breech-loading—1785—A. Wyley.
Fire-bars, &c., for cooking stoves—1640—J. Plimsaul.
Fuel, manufacture of—1714—J. W. Horsfall.
Furnaces, supplying fuel to—1701—A. Rogers.
Gardens, instrument for protecting from birds—1765—W. C. Thurgar.
Gas, purification of—1759—A. A. Croll.
Go-carriages for teaching children to walk, &c.—1604—J. Askew.
Grain and seed screening machinery—1739—J. Francis.
Grass rollers—1722—T. Amies, W. Barford, and E. Pope.
Gunpowder—1694—L. H. G. Ehrhardt.
Guns and ordnance—1807—G. P. Harding.
Hair and flesh brushes—1726—B. Greenwood and I. Underwood.
Harmoniums, &c.—1750—J. Gilmour.
Hats (ventilating)—1572—J. Smith.
Iron, manufacture of—1795—F. Seebohm.
Lamps—747—J. T. Stroud.
Lead, smelting and refining—1686—J. H. Johnson.
Letter balances—1781—E. Bates.
Liquids, apparatus for measuring flow of—1718—A. V. Newton.
Locomotive apparatus, land and marine—763—J. Symes.
Looms—1712—J. Webster.
Looms—1716—D. Stuttard.
Looms—1803—J. Maynes.
Metallic screw nuts, machinery for manufacturing—1740—W. Spence.
Metal tubes, apparatus used when drawing—1751—B. Smith.
Motive power, apparatus for obtaining—1741—T. T. Coughin.
Motive power by expansion and contraction of air—1806—J. Laubereau.
Ornamentation by means of metallic surfaces—1734—W. Clark.
Paints, manufacture of—1709—G. W. W. Webbe and F. Cant.
Pianofortes—1662—J. W. Jones.
Pigments, manufacture of—1729—L. Schad.
Pipe wrench, self-adjusting—1747—G. W. Pitcher.
Piston-heads and packing—1699—G. Haseltine.
Plastic materials, treatment of—1723—F. L. H. Danchell.
Portfolios—1737—G. O. Wray.
Presses—1707—R. A. Brooman.
Pressure guages—1749—W. Weild.
Railway brake—1696—E. J. Dixon.
Railway carriages—1752—C. Claxton.
Railway chairs—1725—Z. B. Smith and J. Richards.
Railway signals—1787—Z. B. Smith and W. L. Nelson.
Railways, permanent way of—1717—J. E. Billups.
Railways, permanent way of—1793—C. Askew.
Reaping and mowing machines—1687—H. Crichley.
Reaping and mowing machines—1697—A. C. Bamlett.
Reaping machines—1775—P. Winton.
Rifle shooting, calculating distances in—1779—T. Wickam.
Sails, apparatus for reefing, furling, &c.—1689—W. Smallwood.
Saws, apparatus for sharpening—1724—J. Robinson.
Sleeve links, &c., lever fastening for—1742—W. Parsons.
Steam-boats, machinery for propelling—1728—W. Hadfield.
Steam hammers—1693—E. H. Carbutt and W. Cutts.
Steering apparatus—1684—H. E. Skinner.
Stone-dressing machinery—1797—P. G. B. Westmacott.
Stretchers, &c., apparatus for suspending from shoulders of bearers—1698—G. Russell.
Tanning—1691—J. Wilson.
Thrashing machinery—1713—M. Meisel.
Ticket-holder—1801—A. Dalzell.
Umbrellas—1777—J. Weeks.
Under-shirts—1783—W. Tillie.
Veneering machinery—1719—J. Stickland.
Ventilator—1710—T. J. J. Greer.
Washing machines—1692—C. H. Collette.
Washing machines—1791—W. Whitley.
Well-boring machinery—1753—P. Maitland.
Wheels and axles—1703—E. Leahy.
Window blinds—1735—A. Bosch.
Wool-combing machinery, brushes for—1674—E. Clifton.
Woven fabrics, stretching and finishing—1711—W. E. Gedge.

PATENTS SEALED.

269. W. N. Hutchinson.
280. J. and C. Hawkins.
282. A. B. Childs.
283. E. Beanes.
294. G. H. Holloway.
302. M. A. F. Mennons.
315. W. Taylor, W. Molineux, and H. Harrison.
320. M. C. de Casteras Sinibaldi.
328. N. McHaffie.
337. R. J. Cunnack.
341. B. Todd.
342. A. M. Perkins.
344. T. S. Cressey.
351. M. C. de Casteras Sinibaldi.
356. R. Smith.
387. P. A. Le Comte de Fontainemoreau.
555. T. Grace.
679. J. Griffiths and J. Jaffrey.
1345. P. Deeley.

From Commissioners of Patents Journal, August 2nd.

PATENTS SEALED.

297. T. Newton.
303. J. C. Dickinson.
307. R. Owen.
308. R. A. Brooman.
309. R. A. Brooman.
310. Sir J. S. Lillie.
316. A. McLaine.
324. J. T. Oakley.
326. R. H. Napier.
331. E. Welch.
354. W. Hawthorn.
359. J. H. Johnson.
363. P. A. L. de Fontainemoreau.
416. C. Field.
454. E. A. Cotelle.
461. H. Batt.
533. E. H. Bentall.
547. W. E. Newton.
552. A. Manbré.
568. W. E. Newton.
580. W. E. Newton.
728. F. L. Roux.
908. J. Ferrier.
924. J. C. Rohrbeck.
1084. J. C. Browne.
1331. H. A. Bonneville.
1426. F. H. Warlich.
1481. G. H. Hooker.
1536. H. A. Bonneville.

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

1879. J. H. Johnson.
1885. J. Robertson.
1899. T. S. Cressey.
1902. J. M. Hart.
1892. C. C. J. Guffroy.

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

2052. O. H. Smith.
2111. C. Iles.
2113. W. C. Cambridge.